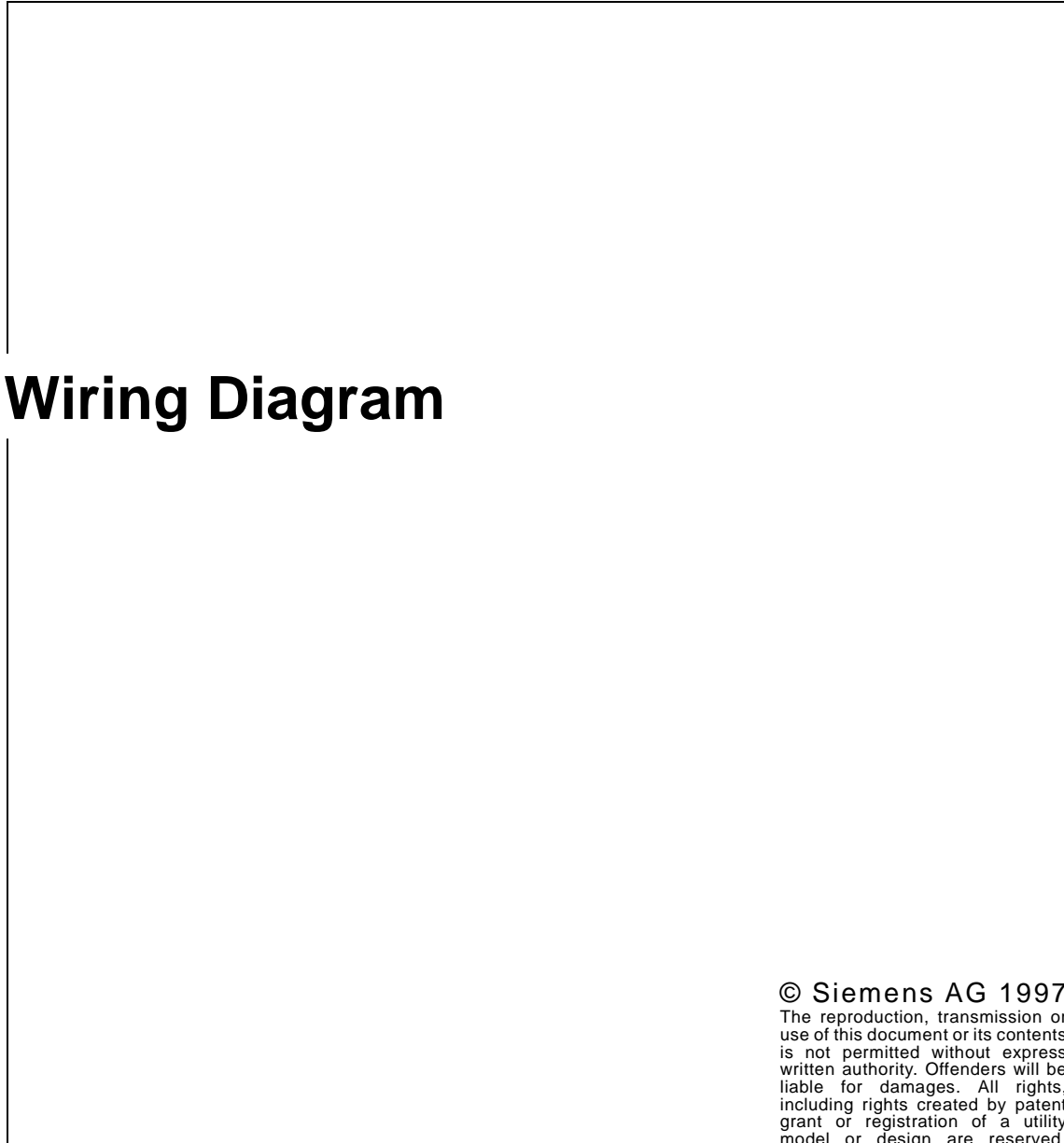


SIEMENS

MAMMOMAT 3000 Opdima™ Digital Biopsy and Spot Imaging System



Wiring Diagram



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General

This document shows the electrical connections, electrical components and testpoints within the Opdima™ system.

Documents required

The following document is referred to in this manual:

- MAMMOMAT 3000 Wiring Diagram

System overview

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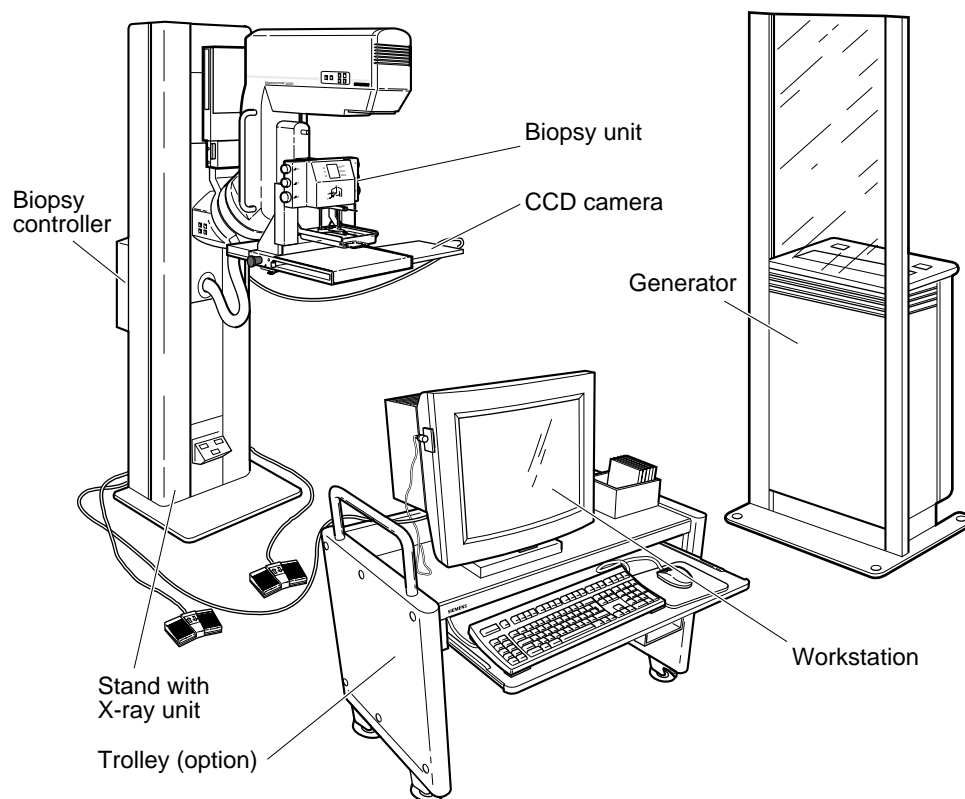
System overview

General

The digital biopsy and spot imaging system Opdima™ is an option to the MAMMOMAT 3000. Opdima™ consists of:

- Workstation
- Biopsy controller
- CCD camera

The biopsy controller is the central unit for the cable connections in the Opdima™ system.



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Figure 1 Opdima™ subassemblies

Location of components

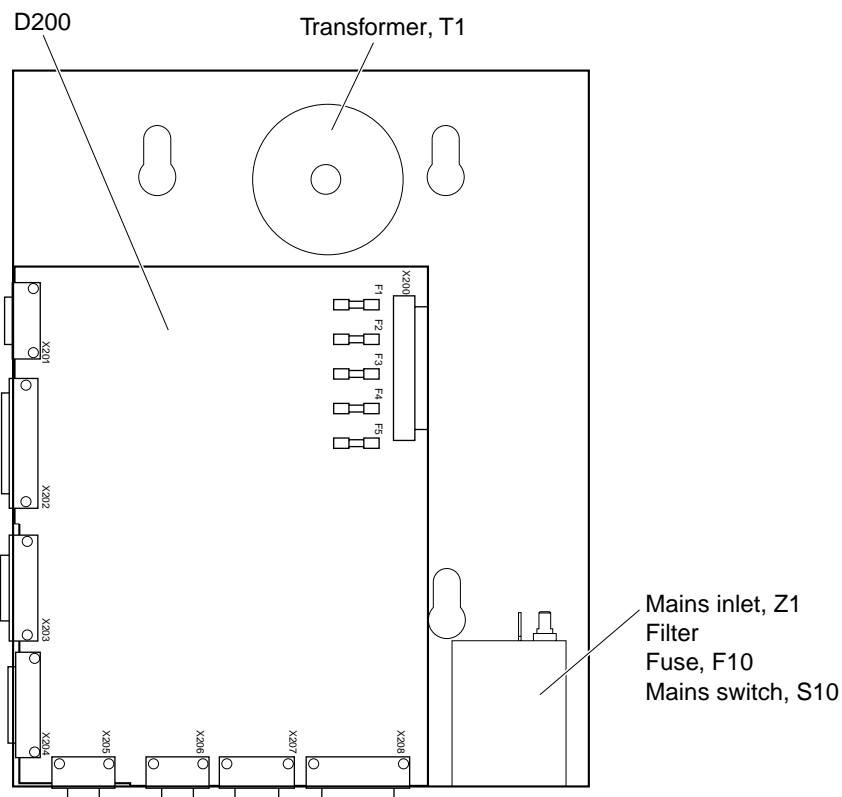


Figure 2 Biopsy controller, inside

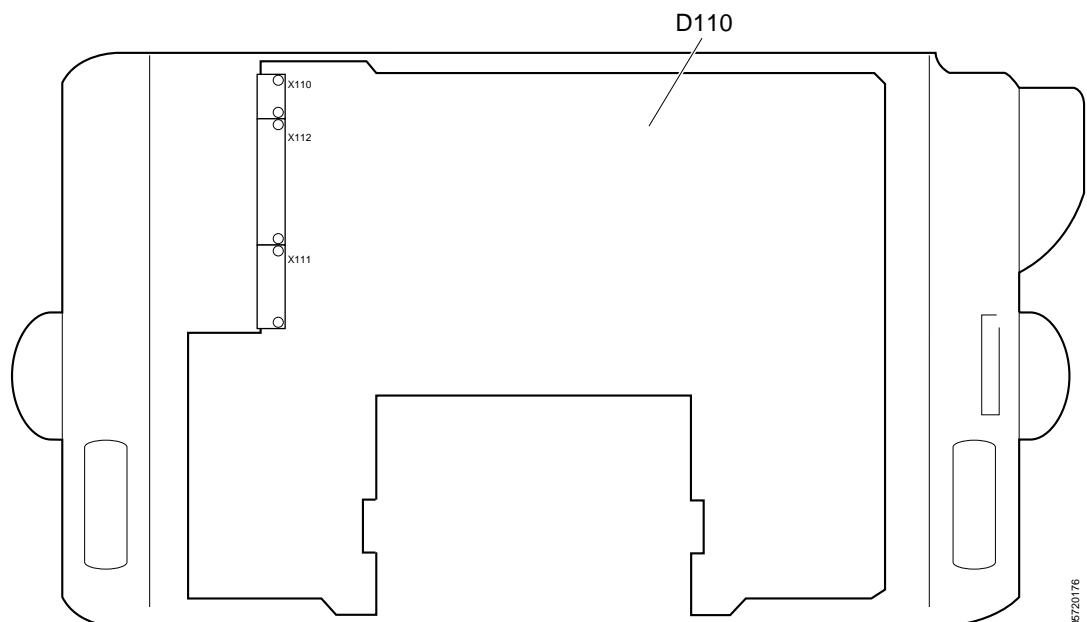


Figure 3 CCD camera, inside

System overview

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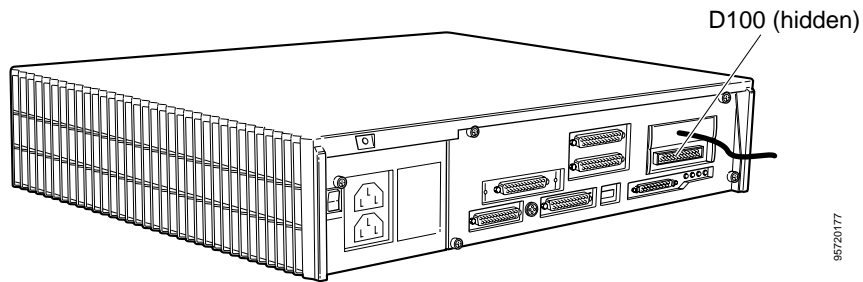
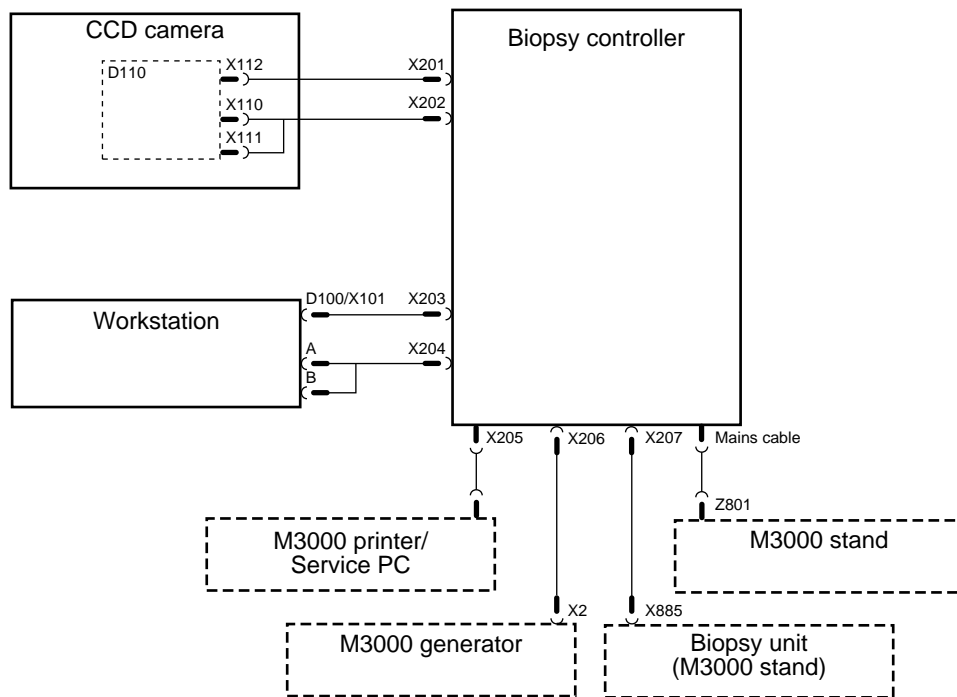


Figure 4 Workstation main unit

Cable connections



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Figure 5 Cable connections

Functional diagrams

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Functional diagrams

Block diagram

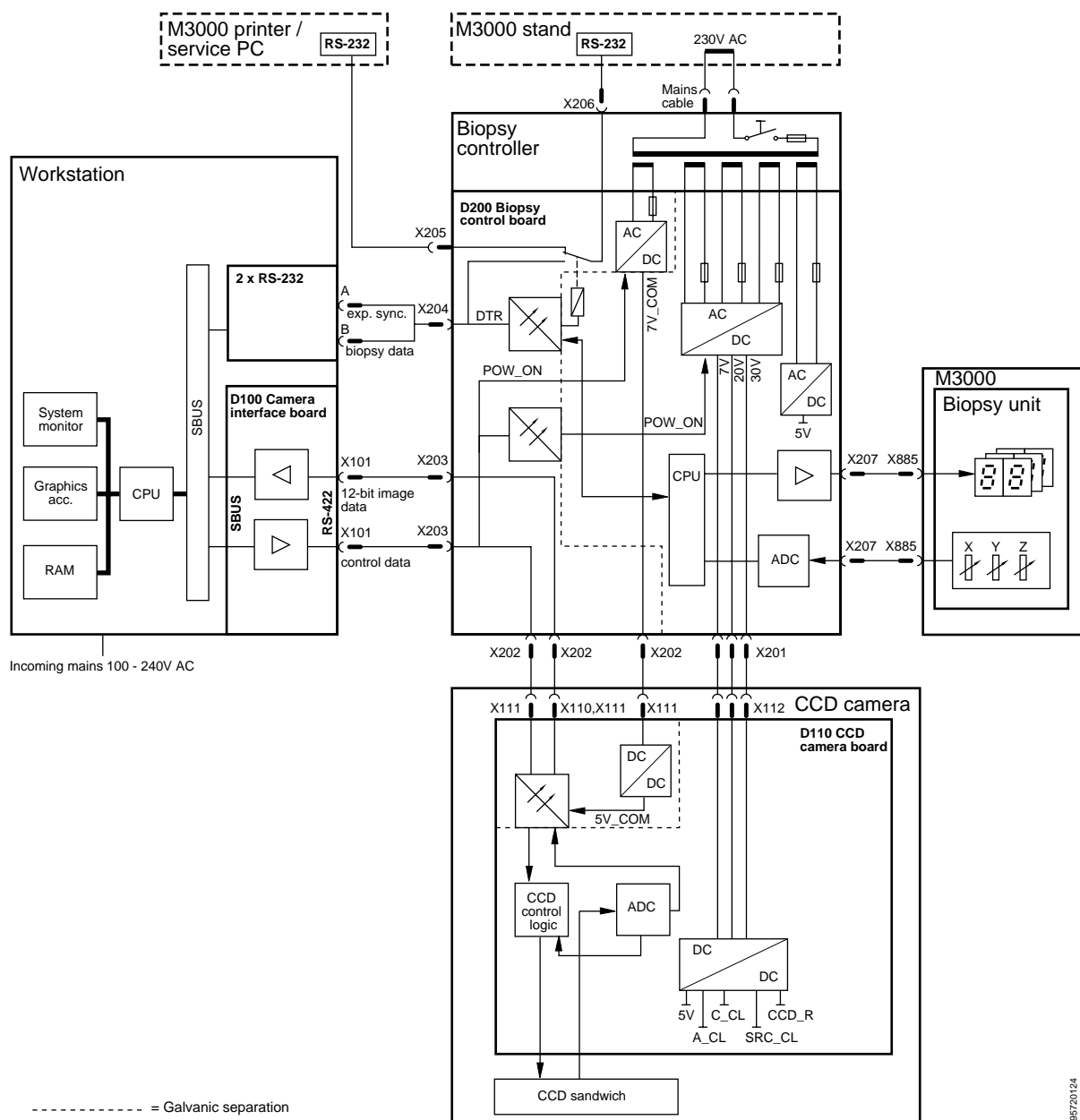


Figure 6 Block diagram

Power supply and ground connections

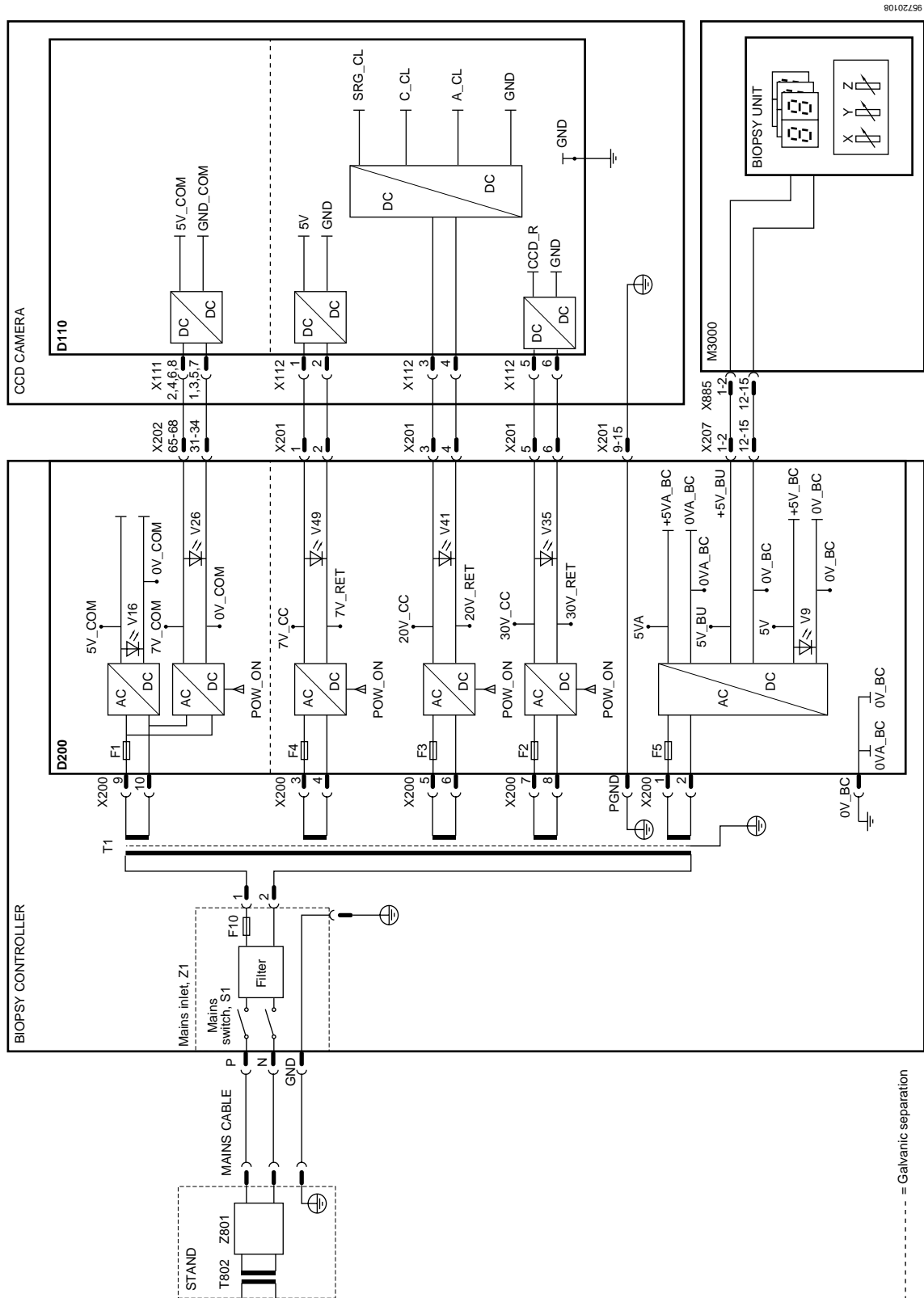


Figure 7 Power supply and ground connections

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The diagram illustrates the internal components and connections of the M3000 system, divided into three main sections: BIOSY UNIT (top), BIOSY CONTROLLER (middle), and BIOSY UNIT (bottom).

BIOSY UNIT (Top): This section contains a CPU, a PROM (labeled I14), a Watch-dog timer, and five error LEDs: RAM ERROR, V5; PROM ERROR, V4; ADC ERROR, V3; NVM ERROR, V2; and TXD ERROR, V1. It also features a Reset switch (S1) connected to the Watch-dog timer. The BIOSY UNIT is connected to the BIOSY CONTROLLER via a D200 connector (pins 3, 4, 5, 6, 8) and an X207 connector (pins 1-2, 12-15).

BIOSY CONTROLLER (Middle): This section contains a CPU, a PROM (labeled I14), a Watch-dog timer, and five error LEDs: RAM ERROR, V5; PROM ERROR, V4; ADC ERROR, V3; NVM ERROR, V2; and TXD ERROR, V1. It also features a Reset switch (S1) connected to the Watch-dog timer. The BIOSY CONTROLLER is connected to the BIOSY UNIT via a D200 connector (pins 3, 4, 5, 6, 8) and an X207 connector (pins 1-2, 12-15).

BIOSY UNIT (Bottom): This section contains a CPU, a PROM (labeled I14), a Watch-dog timer, and five error LEDs: RAM ERROR, V5; PROM ERROR, V4; ADC ERROR, V3; NVM ERROR, V2; and TXD ERROR, V1. It also features a Reset switch (S1) connected to the Watch-dog timer. The BIOSY UNIT is connected to the BIOSY CONTROLLER via a D200 connector (pins 3, 4, 5, 6, 8) and an X207 connector (pins 1-2, 12-15).

Connections:

- BIOSY UNIT (Top) to BIOSY CONTROLLER (Middle):**
 - D200:** Pins 3, 4, 5, 6, 8.
 - X207:** Pins 1-2, 12-15.
- BIOSY CONTROLLER (Middle) to BIOSY UNIT (Bottom):**
 - D200:** Pins 3, 4, 5, 6, 8.
 - X207:** Pins 1-2, 12-15.

Legend:

- RAM ERROR, V5:** LED indicator.
- PROM ERROR, V4:** LED indicator.
- ADC ERROR, V3:** LED indicator.
- NVM ERROR, V2:** LED indicator.
- TXD ERROR, V1:** LED indicator.

Reset S1: A switch connected to the Watch-dog timer.

Figure 8 Biopsy unit potentiometers/display

CCD camera and RS-232 communication

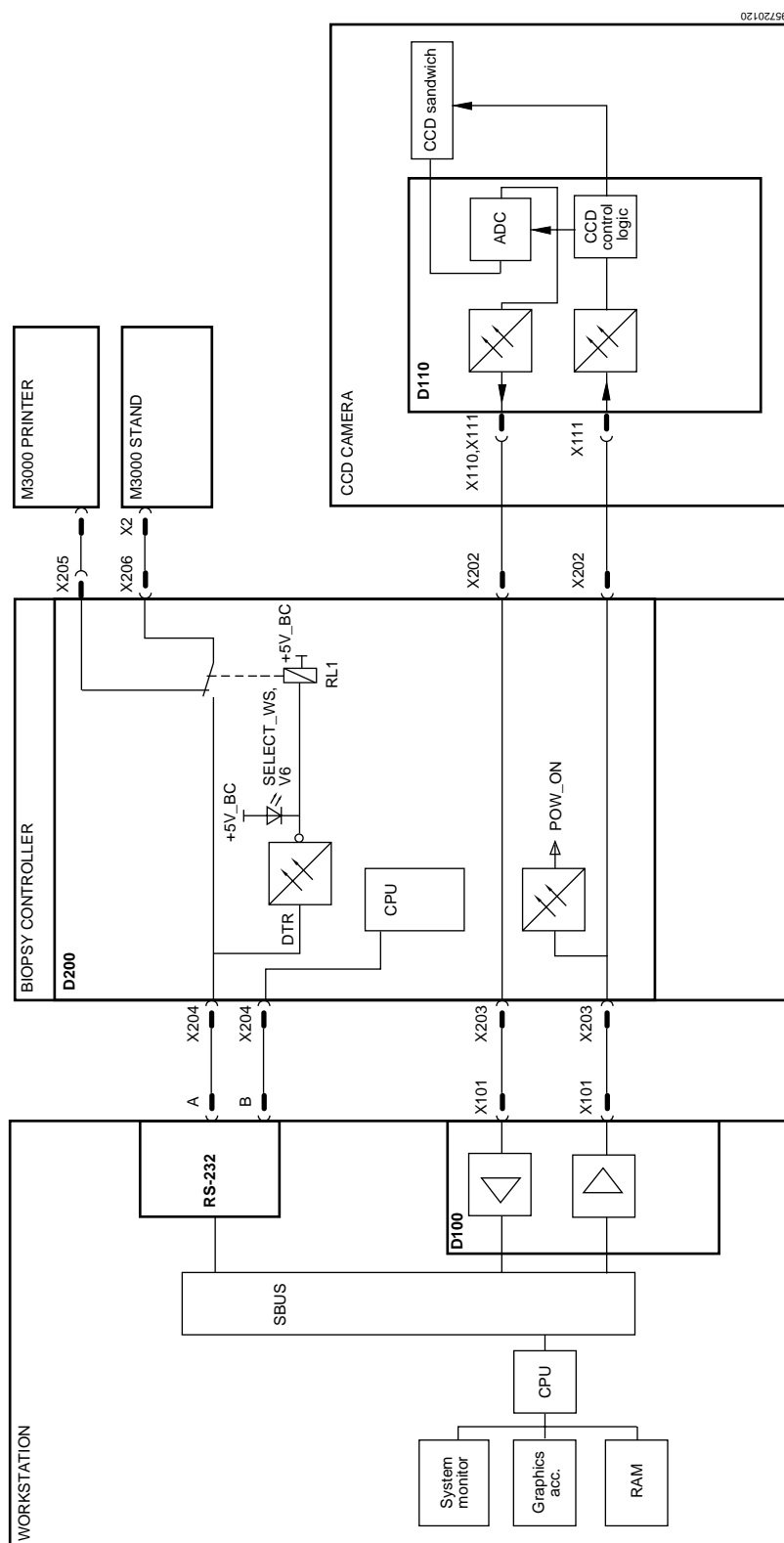


Figure 9 CCD camera and RS-232 communication

List of components

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List of components

Fuses

| Component | Description | Location |
|-----------|------------------------------|-------------------|
| F1 | 1.6AT / 250V (7V_COM) | D200 |
| F2 | 0.5AT / 250V (30V_DC) | D200 |
| F3 | 1AT / 250V (20V_DC) | D200 |
| F4 | 1.6AT / 250V (7V_DC) | D200 |
| F5 | 1AT / 250V (5V_BC) | D200 |
| F10 | 1AT / 250V (230VAC) | Mains switch, S10 |
| F1 | 1.5A / 30V (not replaceable) | D100 |

Printed circuit boards

| Component | Description | Location |
|-----------|------------------------|-------------------|
| D200 | Biopsy control board | Biopsy controller |
| D100 | Camera interface board | Workstation |
| D110 | Camera control board | CCD camera |

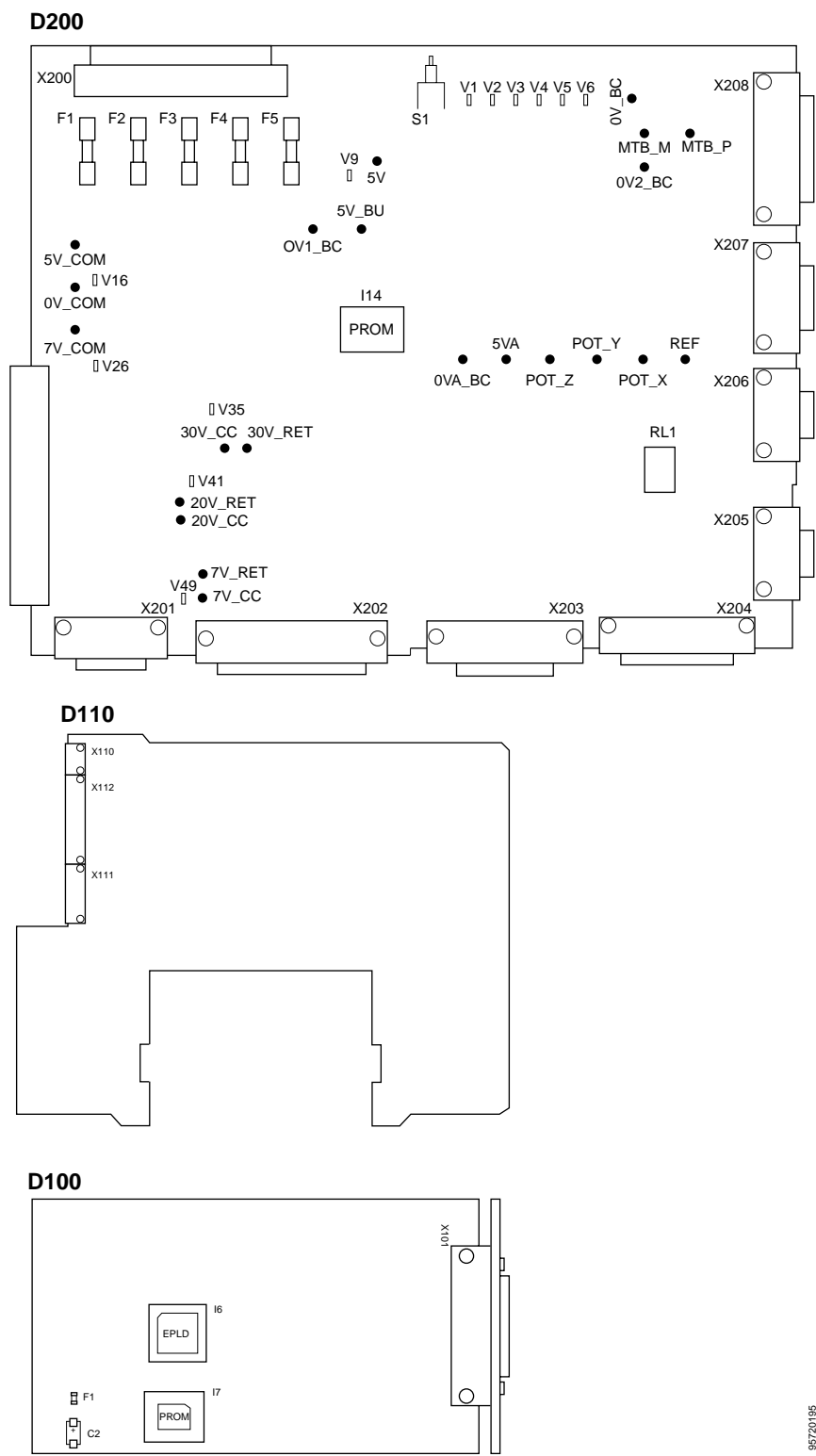


Figure 10 Printed circuit boards, testpoints and components

List of components

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Potentiometers

| Component | Description | Location |
|-----------|----------------------------|-------------|
| R1 | Measurement of x-deviation | Biopsy unit |
| R2 | Measurement of y-deviation | Biopsy unit |
| R3 | Measurement of z-deviation | Biopsy unit |

Miscellaneous

| Component | Description | Location |
|-----------|--|-------------------|
| Z1, S10 | Filter with mains switch | Biopsy controller |
| T1 | Mains transformer with thermal fuse | Biopsy controller |
| I14 | PROM containing biopsy controller software | D200 |
| S1 | Reset switch, D200 | D200 |

List of testpoints and LEDs

Testpoints

| Testpoint | Location | Value | Signal/voltage description |
|----------------|----------|-------------|---|
| 5V | D200 | 4.75-5.25 V | 5 VDC to biopsy controller |
| 5VA | D200 | 4.75-5.25 V | 5 V analog to biopsy controller |
| 5V_BU | D200 | 4.75-5.25 V | 5 VDC to biopsy unit |
| 0VA_BC | D200 | n/a | 0V for 5VA |
| 0V1_BC, 0V2_BC | D200 | n/a | 0 V for 5V and 5V_BU |
| 5V_COM | D200 | 4.75-5.25 V | 5 VDC to receiver |
| 7V_COM | D200 | 6.85-7.55 V | 7 VDC for communication circuits in CCD camera |
| 0V_COM | D200 | n/a | 0 V for 5V_COM and 7V_COM |
| 7V_CC | D200 | 6.85-7.55 V | 7 VDC to CCD camera |
| 7V_RET | D200 | n/a | 0 V for 7V_CC |
| 20V_CC | D200 | 19.0-22.0 V | 20 VDC to CCD camera |
| 20V_RET | D200 | n/a | 0 V for 20V_CC |
| 30V_CC | D200 | 28.5-33.0 V | 30 VDC to CCD camera |
| 30V_RET | D200 | n/a | 0 V for 30V_CC |
| POT_X | D200 | 0-REF | Analog voltage from the biopsy unit potentiometer R1 (x-axis) |
| POT_Y | D200 | 0-REF | Analog voltage from the biopsy unit potentiometer R2 (y-axis) |
| POT_Z | D200 | 0-REF | Analog voltage from the biopsy unit potentiometer R3 (z-axis) |
| REF | D200 | 2.0-3.0 V | Supply voltage for POT_X, POT_Y and POT_Z |
| C2 | D100 | 4.75-5.25 V | 5 VDC to D100 (after fuse F1/D100) |

List of testpoints and LEDs

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LEDs

| LED | Location | Signal/voltage description |
|-----|----------|--|
| V2 | D200 | NVM error, CPU output pin |
| V1 | D200 | TxD error, CPU output pin |
| V3 | D200 | ADC error, CPU output pin |
| V4 | D200 | PROM error, CPU output pin |
| V5 | D200 | RAM error, CPU output pin |
| V49 | D200 | 7V_CC, supply voltage |
| V35 | D200 | 30V_CC, supply voltage |
| V9 | D200 | 5V, supply voltage |
| V41 | D200 | 20V_CC, supply voltage |
| V16 | D200 | +5V_COM, supply voltage |
| V26 | D200 | 7V_COM, supply voltage |
| V6 | D200 | SELECT_WS, workstation selected for RS-232 communication with MAMMO-MAT 3000 |